What Is Claimed Is:

1. A method for generating a system time clock (STC) counter in a receiving device for digital data streams (E), the data streams being generated in a transmitting device by sampling at a sampling frequency (f_{sample}) synchronized by a system time clock in the transmitting device,
characterized by
— determination of the sampling frequency (f_{sample}) of one data stream in the receiving device, and synchronization of the STC counter with the data stream's sampling frequency.

2. The method as recited in Claim 1,
characterized by the setting of an increment of the STC counter, the increment being determined from the ratio between the program clock reference (PCR) and the sampling frequency (f_{sample}).

3. The method as recited in Claim 2,
wherein the increment is set to a constant value based on a nominal sampling frequency (f_{sample}).

4. The method as recited in Claim 2,
characterized by the comparison of the instantaneous presentation time stamp (PTS) of the packetized elementary data stream (E) used to determine the sampling frequency with the instantaneous count of the STC counter, and the correction of the increment of the STC counter according to the comparison results.

5. The method as recited in one of the preceding claims,
wherein the sampling frequency (f_{sample}) is determined from the data stream having the greatest sampling frequency (f_{sample}) of any of the available data streams.

6. The method as recited in one of the preceding claims,
wherein the packetized elementary data streams (E) are compressed video and audio data streams according to the Moving Picture Expert Group (MPEG) standard.

7. A receiving device having a transport data stream demultiplexer (1) for demultiplexing a transport data stream (T) into packetized elementary data streams (E) and extracting flags that identify the presentation time stamp (PTS) for the purpose of initializing the STC counter; a unit (9) for correctly determining the sampling frequency (f_{sample}) of one data stream; and an output control unit (18) for synchronizing the data streams obtained from the packetized elementary data streams (E),
characterized by the synchronization of the STC counter by the sampling frequency (f_{sample}) in the synchronization unit (10).

8. The receiving device as recited in Claim 7,
wherein the synchronization unit (10) is designed to set an increment (SW) of the STC counter, the increment (SW) being determined from the ratio between a program clock reference (PCR) and the nominal sampling frequency (f_{sample}).

9. The receiving device as recited in Claim 8,
wherein the increment (SW) is set to a constant value based on a nominal sampling frequency (f_{sample}).

10. The receiving device as recited in Claim 8,
wherein the synchronization unit (10) is designed to compare the instantaneous presentation time stamp (PTS) of the packetized elementary data stream (E) used to determine the sampling frequency with the instantaneous count of the STC counter and to correct the increment (SW) of the STC counter according to the comparison results.

11. The receiving device as recited in one of Claims 7 through 10 for a plurality of different packetized elementary data streams (V-E, A-E),
wherein the unit (9) is designed to determine the sampling frequency (f'_{sample}) from a selected packetized elementary data stream (E) of the different packetized elementary data streams (V-E, A-E), and the output control unit (18) is designed to synchronize all packetized elementary data streams (E) with the synchronized STC counter.

12. The receiving device as recited in Claim 11,
wherein the sampling frequency (f'_{sample}) is determined from the elementary data stream (E) having the greatest sampling frequency (f_{sample}) of any of the available packetized elementary data streams (V-E, A-E).

13. The receiving device as recited in one of Claims 7 through 12, which is designed to process packetized elementary data streams (E), which are compressed video and audio data streams according to the Moving Picture Expert Group (MPEG) standard.